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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,343	12/17/2001	Larry Edgar Fennern	24-AT-6045	1326
23465	7590	06/17/2003		
JOHN S. BEULICK C/O ARMSTRONG TEASDALE, LLP ONE METROPOLITAN SQUARE SUITE 2600 ST LOUIS, MO 63102-2740			EXAMINER PALABRICA, RICARDO J	
			ART UNIT 3641	PAPER NUMBER

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/683,343	FENNERN, LARRY EDGAR
	Examiner	Art Unit
	Rick Palabrida	3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 27 March 2003.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-4 and 6-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-4 and 6-21 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____

4) Interview Summary (PTO-413) Paper No(s). _____
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

1. Applicant's amendment in Paper No. 9, which revises claim 1, is acknowledged.

This amendment is in response to Final Office Action dated April 3, 2003. Said Final Office Action is withdrawn and replaced by this one.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim Rejections - 35 USC § 112

1. Claims 1-4 and 6-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant claims a containment design rating of 50-150 atmospheres. The disclosure is insufficient in failing to set forth the specific conditions under which such pressure rating would be required. There are several safety systems that are employed to mitigate the consequences of a severe accident, reduce the pressure of fluid releases into the containment and reduce the design basis for the containment. Examples of these are containment sprays, hydrogen recombiners, emergency core cooling,

containment cooling etc. There is neither an adequate description nor enabling disclosure as to how and in what manner such systems and other factors (e.g., reactor power rating, fuel design, etc.) have to be considered in the claimed invention.

This lack of enablement was stated in the 8/8/02 Office Action. In his response to this insufficiency issue, the applicant essentially stated that the items cited as basis by the examiner in said Office Action are "known by one skilled in the art." Applicant's statement lacks showing that his argument is meaningful. Such "broad brush" statement has no probative value because it is not supported by actual proof or evidence, i.e., it constitutes no more than uncorroborative statement by the applicant (see MPEP 716.01(c)).

2. Claims 1-4 and 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The preamble of claim 1 is inconsistent with the body of the claim. The preamble recites the subcombination "containment vessel" whereas the body recites the combination of a "containment vessel and a reactor pressure vessel." Note that the claim recites the limitation, "said drywell isolated from the reactor pressure vessel by a remotely actuated valve." Underlining provided. Therefore, the scope of the claims and/or the metes and bounds thereof cannot be determined. Said clauses accordingly raise a question as to the limiting effect of the language therein on the claims (see MPEP 2106.II.C).

The claims are vague, indefinite and incomplete for the reasons stated in section 1 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 and 6-9 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamaru et al. (U.S. 2002/0085660) in view of Chalfant, Jr. (U.S. 4,465,201). Nakamaru et al. disclose applicant's claims except for the pressure rating of the containment vessel.

Nakamaru et al. disclose a boiling water reactor nuclear power plant with a compact system configuration (see Figs. 1-15). Fig. 2 shows a boiling water reactor comprising a reactor pressure vessel 201, a reactor core inside the pressure vessel 202, a metal steel containment vessel 401 enclosing said pressure vessel, and the containment vessel comprising a bottom head, removable top head, and a substantially cylindrical sidewall. Note in Fig. 14 that the top head of the containment vessel is removable as evidenced by the pressure vessel being lifted through an opening on top of the reactor building. There is a drywell 231 about the open circumference of the pressure vessel 201. This drywell and a pressure suppression pool are inside the containment vessel. There is a plurality of containment penetrations (407, 234, 430,

etc). An isolation condenser 225 is provided (see Fig. 3). There is a guard pipe 407 that encloses a depressurization valve that is part of the emergency core cooling system, said pipe guard drains into the containment vessel. There is a plurality of isolation valves between the containment vessel and the reactor pressure vessel (see Fig. 3).

As to the limitation in claims 5 and 15 regarding isolation of the drywell from the reactor pressure vessel by a remotely actuated valve, note in Figs. 2 and 10A, for example, that there is a pipe 234 that connects the reactor pressure vessel 201 to the suppression pool 404 via a check valve and shutoff valve 224 (see also page 7, paragraph 0120). The suppression pool 404 is also connected to the drywell via pipe 430 and a valve 235a that opens at a predetermined signal or temperature (see page 9, paragraph 0152). Therefore, there is a fluid path from the inside of the pressure vessel 201 to the drywell 231 via the suppression pool 404. Valve 235a provides isolation between the reactor pressure vessel and the drywell.

Chalfant, Jr. teaches a metal containment vessel for radioactive materials having a design pressure of 1000 psig (approx. 68 atmospheres). One having ordinary skill in the art would have recognized that irradiated nuclear fuel is a radioactive material. He would also have recognized that the metal containment of Chalfant, Jr. performs the same function as the containment of Nakamaru et al., i.e., to contain any radioactive releases from its contents and to protect the contents from external events.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Nakamaru et al., by the teaching of Chalfant, Jr., to have a containment vessel having a pressure

rating of at least 50 atmospheres because such modification is no more than the use of well-known values of pressure rating of nuclear containment structures .

The claims are replete with statements that are either essentially method limitations or statements of intended or desired use. For example, "for a boiling nuclear reactor", "sized to receive and enclose a reactor pressure vessel", "forged and machined into a substantially complete one piece unit at a location remote from the nuclear reactor", etc. These clauses, as well as other statements of intended use do not serve to patently distinguish the claimed structure over that of the reference, as long as the structure of the cited references is capable of performing the intended use. See MPEP 2111-2115.

See also MPEP 2114 that states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647.

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531.

[A]pparatus claims cover what a device is, not what a device does."
Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525,1528.

As set forth in MPEP 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

As to the limitation in claims 9 and 20 regarding off-site manufacture of the bottom head and sidewall into a substantially complete one piece, this is a method limitation. See above.

As to the limitation in claims 4 and 14, note from the figures, e.g., Figs. 2 or 10A, that the containment cavity volume (or space) is less than 4 times the volume (or space) within the reactor pressure vessel. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of the claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

Note that the Nakamaru et al. – Chalfant, Jr. combination is capable of being operated in the same manner and for the same intended use as the claimed invention. Note also that this combination meets the pressure rating limitation in the claims. (See MPEP 2131.03 that states:

"[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is 'anticipated' if one of them is in the prior art." *Titanium Metals Corp. v. Banner*; 778 F.2d 775, 227 USPQ 773.

4. Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Nakamaru et al. and Chalfant, Jr. as applied to claims 1-4 and 6-9 and 11-20 above, and further in view of Kobayashi (U.S. 4,576,784). The Nakamaru et al. – Chalfant, Jr. combination discloses applicant's claims except for the thickness of the containment vessel sidewall.

Kobayashi teaches a boiling water reactor having a reactor pressure vessel with a thickness of about 30 cm. (see column 6, lines 9+). One having ordinary skill in the art would have recognized that the containment vessel of Nakamaru et al. acts in the same manner as a second pressure vessel enclosing the pressure vessel containing the

reactor core, and it would have been *prima facie* obvious to conservatively make second pressure vessel have the same attributes (e.g., sidewall thickness) as the primary pressure vessel.

5. Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being obvious over the combination of Nakamaru et al. and Chalfant, Jr. In section 3 above, claims 1-4 and 6-9 and 11-20 above, have been shown as unpatentable over the Nakamaru et al. - Chalfant, Jr. combination.

Note that claim 10 depends from claim 1 and claim 21 depends from claim 11. As to the limitation in claims 10 and 21 regarding the thickness of the containment vessel sidewall being between 15 cm and 30 cm, this is a matter of optimization within prior art conditions or through routine experimentation (see MPEP 2144.05 II.A).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 7:00-4:30, Mon-Fri; 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RJP
June 11, 2003

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SUPERVISOR, PATENT EXAMINERS